



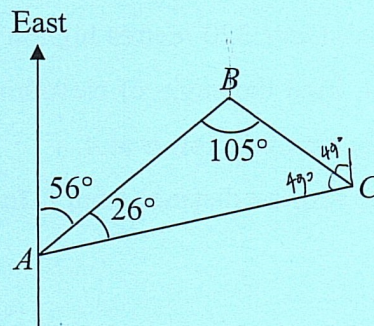
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MA304.4.E1 – Bearings and 3D Problems Exercise

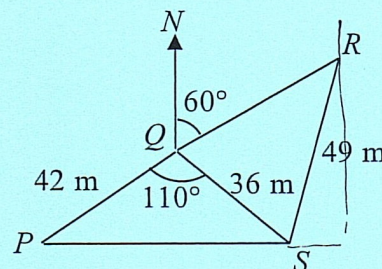
1. A man drives for 8 km in the direction 120° and then 10 km in the direction 210° .
 - (a) How far is he from the starting point?
 - (b) What direction must he now travel to return to the starting point?
2. A whirlpool lies 150 m due north of a seaman. He begins to steer his boat and travel at a direction of 065° . Determine how far he must sail before he is
 - (a) due east of the whirlpool,
 - (b) as close as possible to the whirlpool,
 - (c) equidistant from his original position and the whirlpool.

3. The figure shows the positions of three points A , B and C . State the bearing of

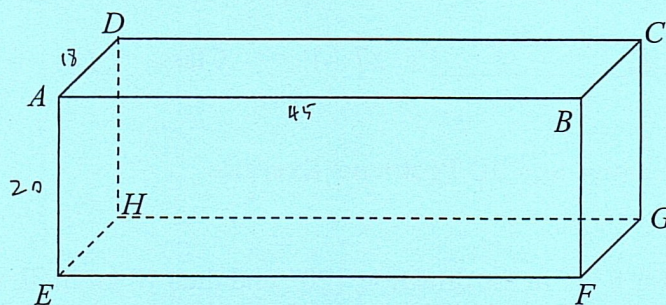
- (a) B from A
- (b) C from A
- (c) A from B
- (d) C from B
- (e) A from C
- (f) B from C



4. The figure shows the position of four points P , Q , R and S in a plane. S is due east of P . The three points P , Q and R are **not** on a straight line.
 - (a) Calculate the distance PS .
 - (b) Calculate the bearing of S from R .



5. A rectangular cuboid, with base $EFGH$, lies on a horizontal ground and has sides $AE = 20$ cm, $AD = 18$ cm and $AB = 45$ cm.



- (a) Find the angle of elevation of D from F .
 - (b) Find the angle made between the triangle BDF and the rectangle $BCGF$.
 - (c) A 30 cm stick stands vertically at the midpoint of AB . Find the angle of elevation of the top of the stick from G .
6. It is given that B is at a bearing between 000° and 090° from A , and is 150 metres away from C , where the latter is 220 metres due east of A . Given that $\angle ABC = 90^\circ$, find the distance of B from A .
- (a) If D is a point such that $ABCD$ forms a rectangle, find the bearing of D from B .
 - (b) A tower stands 320 metres high at point D while another stands 180 metres high at point A . Find the angle of elevation of a man standing on the top of the tower at D from the top of the tower at A .
 - (c) Find the shortest distance from D to AC .